

**A SPECTROSCOPY SYSTEM FOR THE
DETECTION OF CHEMICALS**

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ABSTRACT OF THE DISCLOSURE

A method of detecting a chemical species at a stand-off distance using a spectroscopy system, the method comprising the steps of providing a modulated light source emitting a first beam of light at a first wavelength incident to the 10 chemical species, the first beam of light causing the chemical species to emit a signal, providing a spectral shifter a second beam of light at a second wavelength, the second beam of light causing a photochemical reaction in the chemical species to shift a spectrum of the light emitted from the chemical species, providing a detector positioned to detect the signal emitted from the chemical species, and 15 providing a data processor system in communication with at least one of the detector and the modulated light source, the data processor system processing the signal to determine the identity of the chemical species.